

These observations are confirmed by those of Mr. A. J. Pieters, who obtained results from sowings of spores upon leaves of a growing plant. No cases of penetration through the walls of epidermal cells, as is said by De Bary¹ to be the rule for this species, were observed.—W. H. RUSH, *Botanical Laboratory, University of Michigan*.

EDITORIAL.

BOTANY is making a healthy and vigorous growth in the United States. Never before have there been so many teachers, so many investigators, or so many collectors advancing the interests of the science and making its merits known to the public, as at the present time. Probably no field of the science is now wholly without workers, a statement that could not have been made a few years ago; and what is really more to the purpose, a constantly increasing proportion of the work accomplished has a permanent value and attains a rank of commanding importance.

THE ORGANIZATION of the Botanical club of the A. A. A. S., in 1883, gave a decided impetus to American botany, and especially effected an improvement in the character of the investigations undertaken by individual workers. The movement set on foot last year in the same association, by which a prearranged series of papers covering certain portions of the higher grounds of the science is presented each year, must also prove valuable. These and other means for raising the standard of work for the individual, and for strengthening the reputation of the science among its friends, have already shown good results and justified the efforts put forth.

SO MUCH has already been accomplished that even greater things may be confidently looked for in the future. The coming meeting at Washington, which promises to have a larger attendance of botanists than ever before, should bring forth some new plans for general or co-operative work. Things may be accomplished by the united interest and effort of the many that would be difficult or impossible for single workers. So plain a truth needs no illustration, but its appreciation in solving specific problems may require considerable enforcement.

A MATTER to be borne in mind for the coming meeting is the unique opportunity afforded by the approaching World's Fair to secure some benefits for botany. A few European visitors of eminence may cer-

¹Ann. d. Sc. Nat. Bot. sér. 4. xx.

tainly be expected, and an unusually full gathering of American botanists. Hundreds of industrial and other societies are arranging for memorable occasions, and if some of this enthusiasm could be turned in the direction of pure science the result could not fail to be beneficial.

ANOTHER matter not quite as distant may be suggested here. In connection with the papers upon physiological subjects at the Washington gathering, why not exhibit a collection of physiological apparatus? If each laboratory would send a few pieces the display would be made very interesting.

CURRENT LITERATURE.

Practical Botany¹.

The first edition of the Strasburger's *Kleine Botanische Practicum* published in 1886 has been one of the most useful of the handbooks of recent years. It had its defects, some of which were pointed out in this journal (vol. xii. 91) but they were not such as to seriously impair its usefulness. In this revised edition the author has much improved the book. Considerable additional matter has been inserted, notably in chapters xi, xxii, xxiii, xxvii, xxviii and xxx, and chapters ix and xxi have been almost entirely rewritten. Altogether 52 pages have been added and there are about 20 new figures. It is extremely difficult to make such extensive changes fit in with the old stereotyped plates. This has been done however with a minimum of injury to the appearance of the book, only a few pages being unduly leaded. One could have wished however that so many of the page numbers had not been carried to the inner edge of the page, and that when change was being made these might have been transferred where necessary so as to stand in their proper place.

The figures of the present edition are much better printed than in the first. They now compare favorably with those of the German edition. In every way the book is well manufactured. The suitable paper and loose binding are especially commendable in such a laboratory guide. We hope that it may by reason of these betterments meet with a still wider sale in this country.

¹ STRASBURGER, EDWARD, — Handbook of practical botany, for the botanical laboratory and private student. Edited from the German by W. HILLHOUSE; revised by the author, and with many additional notes by author and editor. Second edition, revised and enlarged. 80 pp. xxiv. 425 (+ 52) figs. 149. New York: Macmillan & Co. [London: Swan Sonnenschein & Co.] 1889.